

loss of the rabbit has upset the balance of vegetation nearly everywhere, and no doubt those butterfly species capable of doing so will take some time to adjust themselves to the new conditions.

In short, there are plenty of valid reasons for the decline, and, sad to relate, many of them are likely to remain operative permanently. The Local Authority may be persuaded to leave road verges unsprayed and to mitigate cutting routines, but the use of chemicals by farmer and forester will continue, and every year the few remaining "wild" breeding places in cultivated and residential areas will become fewer. In how many of our gardens, to say nothing of the farms, does the nettlebed still exist in those odd corners, where once the Small Tortoiseshells, the Peacocks and the Red Admirals used to breed?

It is, of course, a matter of common observation that individual species vary greatly in numbers from year to year; with many, perhaps most, species it is only occasionally that they occur in abundance; in the intervals, species regarded as common may become scarce. A recent example in my area is that of *Pararge aegeria* Linn. (Speckled Wood), which swarmed in parts of the New Forest from July to October 1967 but was relatively scarce in the same areas last year. There is nothing unusual in this; it has always been so, but perhaps we tend to forget it. May not nostalgia—the memory of those bumper years of individual species—account in part for our present discontent in a period of acknowledged butterfly decline. But in fact we are probably suffering from a concatenation of causes, and it is legitimate to hope that a few colder winters and brighter summers may do something to stop the rot.

To end, as we began, with the motor car, I noticed when visiting the West Country three years ago one effect of the enormous increase in motor traffic, which I should have expected, but did not. In the vicinity of Dartmouth, where I had last collected as a naval cadet in 1917, I was surprised to find that the luxuriant hedges and ditches of the narrow winding lanes no longer harboured the wealth of "geometers" that used to respond to my youthful beating stick. But a passing car provided the explanation, and it was not exhaust fumes; the wind of its passage in the narrow lane effectively beat the hedgerows, in which there was hardly a moth to be found. One has to desert the by-roads for cart-tracks and bridle paths to find the missing moths, but again, much good habitat has been practically sterilised.

## Freeing Lepidoptera from Grease

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67, The Spinney, Pulborough, Sussex. 5.1.69.

The problem of keeping a growing collection of moths free from grease, began to bother me upwards of sixty years ago, and I tried a number of fluids that might be suitable to remove this, also powders that might be suitable for drying off, as insects tend to look dirty if left to dry in the air, and I finally decided that white petrol suited me best, and that magnesia powder was first class, to bring up the hairs of the abdomen, and return the insect to its pristine glory, if that had been its condition, apart from grease, when the cleaning began.

In those early days, by no means all species were thought to need freeing from grease, and it was only the internal feeders that were so

dealt with, but over the years I found that the appearance of grease can be long delayed, and that to be safe it is well to treat all cabinet specimens, and that this is best done as soon as they are off the boards, for once grease has begun to spread, it soon reaches the thorax, and the whole insect must be treated, often with the result that some distortion occurs.

A kit of tools was evidently required and finally I decided that four boxes were needed, each of which would have thirty-two spaces, all numbered in sequence.

Box number one, simply a small store-box divided up into 32 spaces and numbered from 1 to 32, inked in with a pen.

Box two needed to be three inches deep and fitted with a plywood tray that had the requisite number of holes, cut through the wood, to take two-inch deep by one-inch wide test-tubes, all of which would have numbered corks. The wood could be quite thin, but not so thin as to warp. These holes can be easily cut with a centre-bit, which should be just larger than an inch, as the tubes must be easy to take out and replace.

The third box must be three inches longer than will be needed for the thirty-two divisions it will need, and this space is left free from any obstruction.

The easiest way to make the divisions in this box is to put in a shelf of half-inch deal with thirty-two holes cut in it, as in box two, but here there is a sheet of flyproof zinc fastened underneath to hold the magnesia that will be put in each hole.

Box four is a replica of this third box except that again plywood is used so that the divisions are shallow, and again the divisions have perforated zinc below them.

A tube of adhesive, a camel hair brush, and a few long pins will be needed, and then all is ready for the cleaning to begin, except for the petrol and magnesia powder already mentioned.

The insects to be cleaned have been assembled in box one, and it is a good idea when putting them in to follow a large insect by a small one in case, despite all the safeguards, two bodies get into a single tube from any mischance.

Take insect number one and break off the abdomen (hereafter to be called the body) and drop it into tube one, and proceed with all the other bodies, each in its proper tube.

Fill all the tubes to be used with the petrol, almost to the level where they will meet the cork when replaced, and replace all corks. Check that there is one body in each tube, and that the bodyless insects and body-containing tubes, are the same in number, and leave for forty-eight hours, or longer if this is more convenient.

After this period of soaking, all the grease will have been washed out of the bodies and they are ready for the drying off box number three.

Only now should the magnesia powder be placed in the divisions, it does not improve with exposure to air and dust. Take the bodies from the tubes and place each in its proper hole, see that they are all covered with the powder, and leave for an hour or two or, if desired, for a much longer period. When doing this I uncap the tubes one at a time, then it is clear which tube to fish in next. Use wide-spring forceps.

The next operation can now be undertaken, and consists in taking each body out of the magnesia powder and placing it in the fourth box division waiting to receive it, and again there is no hurry and it can remain there until convenient

The replacement of the bodies is a rather longer job than any of the other stages and is best not started until time is available to go through with it to the last detail.

With the camel-hair brush, gently stroke each body to remove any powder that may hang. It can usually be puffed off, but being so light will make an awful mess, and the most important spot to clean is the top where the adhesive has to be put.

Now take the first insect out of the box and pin upon a piece of cork, take the body that belongs to it, and put a small blob or globule of gum on it and press it back into position and hold it there until it holds or, to save time, pin the insect against the side of the store-box so that pressure is exerted by the box-side, and this I usually do, as in that position it is easy to make any small adjustment with a setting needle, and once the body is on there is no need to keep the insect in sequence.

There are a few snags that may be met with, the most frequent is that upon occasion the hindwings come away with the body, which is of no great matter as the wings and body can be put in the tube intended for the body, but when this body and attached wings come from the tube to the powder, they must be placed in such a way that they lie flat, and this is where the space in box three comes in. Fill it up with powder, smooth it flat, make a groove for the body, and see that you have the wings flat, then cover deep with powder. This will then be safe from distortion and be easily refixed and, when a case like this occurs, place the cork of the tube it came from beside the body and put a piece of paper in the division it should have occupied. One cannot be too careful, especially when the cleaning is not done as a single operation.

Any chemist will be able to supply the magnesia powder. The white petrol I use is Shell aviation SPB I, and this must be ordered in two-gallon cans. It is best used only once, and when it is poured from the tubes they will need to be cleaned from the grease, the quantity of which is surprising and, if left in tube, forms a thick gummy layer at the bottom which is not too easy to remove. The used petrol is still good for car or engine.

The magnesia powder is good for a lot of insects, but is best renewed after about a year, as it tends to cling to the bodies when stale (dirty).

An objection that has been urged against petrol is its inflammable nature, but this is no risk away from a naked flame.

A warning that must be given is that if, when insect is removed from the board, the body flies off, it must not be at once stuck on or it will be very difficult to deal with when degreasing. It is best to put the insect into number one box and the body into the right tube and it can stay there indefinitely.

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